GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JUNE 6, 1888.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Rainfall on the Plains.—Formal Flower Beds.—Note 169
Terrace and Veranda—Back and Front.....*F. L. Olmsted.* 170
The Court-yard of Charlecote Hall (with illustration) 171
ENTOMOLOGICAL:—The Work of a Timber Borer.....*Professor A. S. Packard.* 172
NEW OR LITTLE KNOWN PLANTS:—Camassia Cusickii (with illustration), *Sereno Watson.* 172
PLANT NOTES:—The Ginkgo Tree (with illustration)..... 173
Old Lombardy Poplar at the Trianon.—Sugar Maple.—Ginkgo biloba.—Actinidia volubilis..... 174
CULTURAL DEPARTMENT:—The Green-house..... 175
Hardiness of Perennials.....*T. D. Hatfield.* 176
Forget-me-nots.—Onosma stellulatum, var. Tauricum.—Mackya bella.—Fragrant Herbs for Edging Plants.—Strawberries and Birds.—Cut-worms..... 176
The Rock-Garden in Spring.....*C.* 177
Notes from the Arnold Arboretum.....*J.* 178
THE FOREST:—Tree Notes .....*Robert Douglas.* 179
CORRESPONDENCE 179
NOTES..... 180
RETAIL FLOWER MARKETS:—New York, Philadelphia, Boston..... 180
ILLUSTRATIONS:—The Court-yard of Charlecote Hall..... 173
Camassia Cusickii, Fig. 32..... 174
The Ginkgo Tree, Fig. 33 175

The Rainfall on the Plains.

SEVERAL weeks ago, in discussing the question of water supply on the Great Plains, it was stated in these columns that no data could be found to justify the belief that any increase of rainfall had followed the movement of emigration towards the Rocky Mountains. On the contrary, the calculations made by Mr. Gannett seemed to establish the fact that there had been no such increase. This is opposed to the statement often made that the simple planting of scattered groves of trees in Kansas and Nebraska has materially changed the climate in this regard, so that with more abundant rain, crops can now be raised beyond what was the western limit of profitable agriculture several years ago. It was added that if there has been any modification in the agricultural condition of the Plains which enables farmers to reap paying harvests where it was once thought that crops could be produced only by the aid of irrigation, this change could be accounted for on other grounds than that of an increased supply of water in the form of rain. It should be remembered that crops are often raised with profit on lands where the rainfall during the entire year, even if it could all be utilized, is not sufficient to insure a maximum yield. And in temperate climates it rarely happens that the rain which falls during the growing period of a crop is sufficient for its support. The water stored in the ground during the remainder of the year must be drawn upon to supply the enormous amounts given off by evaporation from the surface and by transpiration from the leaves of the plants. In estimating the value of any land for agricultural purposes, it is therefore necessary to take into account its capacity for absorbing and holding moisture as well as the amount of rain-water which annually falls upon it. And it is not improbable that the breaking up of the surface of the Plains has enabled the soil to receive and retain a considerable amount of the rainfall which would have flowed off into the streams from the hard, smooth face of the unplowed land.

These problems cannot be accurately solved until trustworthy data have been collected by years of patient investigation. Nevertheless the prevalent belief of intelligent men in these western regions is of great value as an indication of the truth. If it were their united opinion that the rainfall had increased, it would justify the supposition that there was some climatic change in this direction, although the extent and amount of such change would remain a most uncertain quantity.

This view of the case gives special interest to a chapter in the last quarterly report of the Kansas State Board of Agriculture which has just been received. Among the papers read at the annual meeting of the Board was one by the Secretary, in which the "improved condition of the water-supply in the State" was mentioned as one of the promising indications of a prosperous future for its agriculture. These improved conditions, the Secretary said, did not come from an increased rainfall, but probably from the loosening by tillage of the almost impervious crust of the prairie, and the consequent detention of the water which had formerly flowed off swiftly into the streams. A general discussion followed the reading of this paper, in which men from all portions of the State took part, and so far as the report shows, no one claimed that there had been the slightest increase in the rainfall. One member of the Board expressed the belief that "the State had been seriously injured by spreading abroad the impression that a wonderful climatic change was going on whereby the dry prairies were to be made to blossom as the Rose," and many others declared that long and careful observation had convinced them that no more rain fell now than when the prairies were trampled by immense herds of buffaloes. The opinion, however, was very general that the condition of the soil, as regards moisture, had been improved by cultivation, that there was more dew, that springs had appeared in places where none existed in earlier days, and that after heavy rains the streams did not rise as rapidly, nor to as great a height as formerly.

It was suggested in the discussion that Kansas farmers had learned to overcome, in a measure, adverse climatic conditions, by deeper and more thorough tillage and better cultivation. This may help to account for paying crops beyond the ninety-eighth meridian, and may modify the opinion that successful agriculture there is due alone to the increased storage of water in the soil. However that may be, the alert farmers of the frontier are wise in basing their hopes of success on something more substantial than the opinion that trees will call down more abundant rains upon their fields. That forests exert an important influence in conserving the moisture in the soil is an established fact, and the planting of trees where they will grow in the west, may, in time, render important service to agriculture. But the coming of this time will not be hastened by claiming advantages from forest planting which cannot be justified by any recorded experience or by scientific argument.

Formal Flower Beds.

NO question affecting the art of gardening is more frequently discussed than the question whether the formal flower bed is a thing to praise or to condemn, a thing which gratifies a cultivated taste or one which merely panders to the taste that delights in vivid chromos and in pinchbeck personal adornments.

About a hundred and thirty years ago the formal, "architectural style" of gardening — which had ruled in Europe for many centuries, and had found its most conspicuous expression at Versailles—was superseded by the "natural style," the style for which the distinctive name of landscape gardening was soon invented. Then for a long time the use of formal flower beds was almost as entirely abandoned as the use of clipped trees and straight-lined terraces. Even in small gardens given up entirely to the

cultivation of flowers (like the gardens of our grandmothers' days), although the paths might be straight and formally edged with Box, the plants themselves were not formally arranged—were not massed according to colors, nor clipped into uniform shapes, nor relieved against broad stretches of turf. It is only within comparatively recent years that there has been a return to the genuine pattern-bed, and its complement, the ribbon-border. An explanation of the revival of a taste for such beds and borders has often been found in that fancy for bright-flowered Geraniums which was so strong some twenty years ago that in England, at least, it amounted to a veritable horticultural craze, and in the general introduction a little later of the Coleus and other colored-leaved plants. But it is a mistake to attribute to a love for such plants the revival of a love for pattern-beds and borders. The converse statement would be nearer the truth; it might better be said that they became popular because public taste demanded just such plants for a particular purpose.

This purpose, if its results be carefully examined, proves to have been identical with the desire to increase the beauty of home-grounds in such a way that the smallest expenditure of thought and pains might produce the quickest and most conspicuous results. An immediate effect and a showy effect—these were the things desired in our gardens; and it was perceived that the most seductive recipe for securing them was to mass such plants as Coleus and Geraniums in large bodies so that their vividness of leaf and flower should be brought into strong relief by an expanse of closely cut turf. This desire was not in itself a very laudable one; and it would be easy to show that the recipe upon which it seized was not so satisfactory, even apart from æsthetic questions, as it appeared to superficial eyes. It would be easy to show that the practice of "bedding out" is, in the long run, the costliest which can be adopted for the adornment of a garden, whether large or small. But we are concerned just now simply with the artistic value of the formal pattern-bed. Is it a beautiful thing, or is it an ugly thing?

As thus put—in a general, abstract way—the question cannot be categorically answered. What must be said is that, like almost everything else in the world, a formal flower bed is beautiful or ugly according to whether it is in the right place or in the wrong place. It is never an isolated object. It is always an object which the eye embraces in a single glance with many others. And according as it agrees or disagrees with its surroundings, according as it helps or hurts the general impression which all together make, it is beautiful or ugly.

Let us see now what its characteristics are, in order that we may understand where it may be used to good effect, and where it can be used only to bad effect. They are easily defined characteristics: Conspicuous formality—that is, symmetry and rigidity—of outline and surface, and conspicuous brilliancy of color. And they are characteristics which, when thus set forth in words, themselves explain their right employment. When rigid, symmetrical lines of other sorts enter into a scene, and when a large spot of vivid color does not strike too loud a note in the general effect, then the pattern-bed is in place. Under other conditions it is out of place.

Unfortunately this is to say that, as we most often see it used, it is decidedly out of place—decidedly injurious to the scene which it is supposed to ornament, and, therefore, ugly in itself. We most often see it used to ornament the lawn in a place which has been laid out according to a natural, unsymmetrical scheme. No position could be worse for a formally outlined flower bed than one in which all the surrounding lines—alike of gravel walk, of free-growing shrub and of untrimmed tree—are varied, unsymmetrical and natural in effect. And no position could be worse for a mass of brilliant colors than an isolated position in the centre of a stretch of shaven turf. It ruins that air of unity, repose and breadth which is the one end and aim when a lawn is created, while the wide carpet of green throws its own colors into such undue relief that it looks like a crude and gaudy picture hung on a strongly tinted wall.

In short, there must be something in the vicinity of a formal flower bed to suggest what it suggests itself, if the effect is to be a pleasing one. In the immediate neighborhood of a work of architecture a pattern-bed may be the most beautiful because the most appropriate object which could be introduced; or, if intersecting walks or roads leave a formally outlined space of small extent between them, formal planting may there be the best. In small urban parks, again, if discreetly introduced, it is harmonious, both as agreeing with the symmetry of street architecture and as filling a space palpably too restricted to be properly utilized by a more natural arrangement of plants. It is impossible in a single article to discuss the subject thoroughly. But enough has been said for the moment if we have shown the true point of view from which it should be approached.

The rapid introduction into general cultivation in this country of the purple-leaved Plum, known in gardens as *Prunus Pissardi*, to which attention is called in the notes from the Arnold Arboretum printed on another page of this issue, well illustrates the existing fancy in this country for garden novelties, and especially for plants with abnormally colored foliage or habit of growth. It is less than ten years since this plant was sent to Europe from Persia, and yet the owners of a large proportion of the pretentious villas in the United States now point to it with pride as one of the chief treasures of their gardens. Glowing descriptions in nursery catalogues, and gorgeous chromos in the hands of tree agents, for which style of illustration, the deep purple leaves of this plant are particularly adapted, have quickly spread it far and near. And this tree is neither very handsome nor very desirable, and it is certainly, as an ornamental plant, inferior in every way to the Myrobalan Plum, of which it is probably only a purple-leaved form. But no one ever plants the green tree, which is now practically unknown in this country, and which probably could not be found in any American nursery, while thousands of the purple-leaved variety are planted every year.

Terrace and Veranda—Back and Front.

THE following queries suggested by the "Plan for a Small Suburban Homestead," in the issue of Garden and Forest for May 2d, have been referred to me.

"On the south side, where, in a typical American house, there would be a shady veranda, instead of it there is what is called a terrace—an uncovered platform—upon which the sun must fall and be reflected with burning heat and blinding light into the adjoining rooms. The house has no front door. To enter it from the street, visitors must go round by the back yard, close by the stable. What can be said for such arrangements except that they are striking from their originality or their foreign character? If a speaker chose to turn his back upon his audience he would offend a sense of propriety. Is there no question of propriety about the front and back of a house?"

I reply with pleasure to these inquiries.

A well-shaded apartment having been provided, outside the walls, at the south-west corner of the house, much better adapted for the seating of a family circle than an ordinary veranda, the platform called a terrace will serve desirable purposes that a veranda in the same situation would not. The family rooms giving upon it can be opened to sunshine, as it is best that all rooms should be occasionally, summer and winter. The sun can be excluded from them when it is better that it should be (leaving the air free course through the windows), by adjustable awnings. Interesting forms of decorative sub-tropical vegetation can be fittingly set upon such a terrace in immediate connection with the principal family rooms, as they could not be in the

shade of a veranda. There are several months in the year when the terrace could be occupied for one or two hours of most days as a work-room for ladies or as an airing place for an infant or a convalescent, when it would be imprudent to sit in the shade out-of-doors, or to walk on damp turf.

As to a common sense of propriety and respectability in matters of the front and back of houses, let us consider how what may pass for such a sense has probably originated.

A feudal chief wishing to lodge a body of his vassals at a particular point, before unsettled, of his domain, would provide rows of huts set closely together on each side of a common passage or street. They would have the characteristics of such huts as are to be seen now by the score, for example, at Paso del Norte on our southern frontier; a single room for a family, a door on the street side, a door on the other side, no windows, a little corral into which goats, swine and fowls are driven through the hut at nightfall.

As civilization advanced the manorial lords would find it to their profit to extend these villages, build larger dwellings, and, after a long interval, give them a little window on each side of the street door. Later, the roof would be pitched steeper and a sleeping-loft added. Then, on the street side, the walls would be built higher so that there could be upper rooms, also with windows, the roof still carried down to the first story on the opposite side.

At this stage of the evolution certain landlords might come to regard certain of their villages as a part of their lordly array; to conduct guests through their streets and to take pride in their cottages as they would be seen from the streets. It follows that new cottages would be built a little set off from the street and would be given a street door-yard; their street walls would be whitewashed and tenants would be encouraged to decorate the street yards with flowering plants and to line the ways from the street to the street doors with rows of box or shells or white stones. The other side of the house would still preserve the original hovel character; would have no windows, and the door would open upon a dunghill and rough shelters for the increasing personal wealth of the tenant in goats, pigs, donkeys, geese and fowls.

It can hardly be necessary to pursue the process of development nearer to "the typical American house."

Why is it that we so often see the family rooms of a house in the country on the least valuable part of the site of a homestead; the kitchen, wash room, drying yard and out-houses on the best part of it? Why is it that if one asks at a Seaside Hotel, where he can see the ocean, he is told to go out back of the stable? The answer is that it is because of a lingering superstition—a spurious semi-religious sentiment—which had its origin when one side of most houses—the side facing a public road—was the human side, the other the side of pigs and goats and geese, filth, darkness and concealment.

The front, *the* back, are terms no more applicable to a well designed house in America than anywhere else. Our Capitol and our White House have two fronts. Our beloved house at Mt. Vernon has two fronts. The old Hosack house at Hyde Park on the Hudson, the finest country-seat in its natural elements in America, has four fronts, as have most palaces and many other monumental buildings, as those of our Interior and Post Office Departments. (But this is a plan hardly ever to be recommended except where there is to be a spacious interior court, as in many French and Spanish country houses.)

Generally with us a country house, and often a suburban house, will best have three fronts. Except as regard for winter shelter or summer breeze may overrule, one of these will be on the side looking from which there is the most pleasing natural scenery, and here will be the more important family rooms (as at Mt. Vernon and at the White House). If the outlook from them has a fine distant background (as at Mt. Vernon and the White House), then the nearer premises should be treated partly with a purpose to provide a place of common, quiet, domestic occupation, to be used in connection with the parlor or library, and partly with the aim of fitting the landscape with a foreground nicely conforming to, and helping the effect of, the middle distance and the background. It is desirable for neither of these purposes that there should be a sweep of gravel on that side of the house upon which horses may be driven or be kept standing, nor that there should be a public entrance to the house there. Usually a lawn, framed and sparingly furnished with masses of shrubbery that will not grow so high as to hide the distant view, will be best. But if the natural surface of the ground is rapidly declining from the house, especially if it is in the form of a broken and one-sided declivity, having a dislocating effect in connection with the distant view, then a level platform before the house, its further edge having a parapet, balustrade or hedge, will be desirable, both in order to give an effect of security and quiet to the immediate border of the house, and to make a strong foreground line by which the distance will be softened and refined.

Another side of the house will be its garden front, chosen because (of the three remaining sides) it offers the best conditions for a garden, properly so called. Another will be the entrance front, the treatment of which will be large in scale and less fine than either of the others. But here, if possible, there should be umbrageous trees. There will remain that part of the house containing the kitchen and laundry, from which will extend yards and sheds and spaces where wagons can stand and turn when bringing supplies or taking off wastes. Beyond them, perhaps, a carriage-house, stable and smaller out-houses. This should be the side on which the outlook is of the least value, and on which the natural circumstances favor convenient but not conspicuous lines of approach.

When such a complete arrangement, as has been thus suggested, is impracticable, the same general principles may be adopted as far as circumstances admit. It rarely occurs in any interesting place that the principal entrance can be best made on the more attractive side of a house. It often occurs, as in the finest places at Newport and Long Branch, that the best location for the stables, stable yard and laundry yard is on the street side of the house, and that the approach to its principal entrance passes near these, bringing them, exteriorly, under close view.

Brookline, May 18th, 1888. *F. L. Olmsted*

The Court-yard of Charlecote Hall.

AS has been said on a previous page, the beauty of a formal flower bed depends upon the question whether it is in the right place or in the wrong place. It may be more beautiful, because more appropriate, than any other horticultural decoration; and it may be more ugly because more conspicuously inappropriate than any other. Our own home-grounds, both large and small, offer numberless instances of its improper use. Examples of its proper use are not so easy to find in America; and even in Europe we more often deplore than welcome its presence. When the natural or landscape style of gardening came into favor, the reaction in taste carried artists and owners alike into an excess of hatred for all formal gardening arrangements. Many old gardens of the architectural pattern were ruthlessly destroyed, although they were appropriate and beautiful because closely connected with works of architectural art. And the formal beds of modern times are, as a rule, not much better employed in Europe than in America. But here and there in all parts of Europe, and even in England, where the love for natural arrangements long ruled more strongly than elsewhere, old gardens of architectural design, or portions of such gardens, may still be found. The illustration given on page 173 is a good example of gardening of this character, and gains a double interest from its connection with the name of the greatest of English poets.

Charlecote Hall stands some three miles from Stratford-on-Avon, and was in Shakespeare's time, as it still is to-day, the seat of the Lucy family; and it was in Charlecote Park that, as the familiar legend tells us, the young poet played the poacher's part. The hall, as it stands to-day, scarcely changed as regards its exterior, was built in the first year of Queen Elizabeth's reign—in 1558, six years before Shakespeare's birth. As we see it to-day, therefore, he must have seen it; and not only the Hall itself, but the gate-way and court-yard which our illustration shows, for these form an integral part of the plan of the building itself. Our point of view is from a spot immediately in front of the Hall, the projecting wings of which are joined by the terrace walls on either hand. Thus house and walls and gate-way completely encircle the court-yard, and the architectural design of the little-garden it encloses was dictated by good taste. Imagine this small space arranged in the natural style of gardening, and we perceive at once that the planting itself would be ineffective, and that the effect of the architecture would be grievously impaired. Beyond the walls the naturally growing trees give an accent of variety, and pleasantly suggest the beauties of that wilder nature which the word park implies. But within the walls the formal beds are properly placed, and even if vivid in color they cannot be too emphatic in effect. for they are not set in immediate relief against a carpet of bright green, but are surrounded by borders of gravel the neutral tones of which, together with those of the architectural elements, must subdue the brightest floral notes into a general harmony.

Entomological.

The Work of a Timber Borer.

AS is well known, the borers of some of our shade trees, as well as the grub or larva of the Monohammus of the White Pine, occur in lumber, and, on very rare occasions, live on for many years, either as larvæ or beetles, probably the latter, in lumber which has been made into tables, chests of drawers or other articles of household furniture; the beetle for a long time afterwards giving out ghostly squeaks, finally emerging from its tunnel in the well-worn and familiar bureau or table, as the case may be. The latest occurrence recorded in print is noticed by Mr. J. McNeil, who states in the *American Naturalist* for December, 1886, that two specimens of a longicorn beetle (*Eburia quadrigeminata*) must have lived in an ash door-sill for a period which "would make these insects not less than nineteen, and probably twenty or more years old." A somewhat similar case happened at Salem, Mass., as we have been informed by A. C. Goodell, Esq., who took a "sawyer" beetle (*Monohammus confusor*) from a bureau that had been in his house for fifteen years, and was new when bought.

Apropos of such cases of extraordinary longevity in boring insects whose life ordinarily spans but two, possibly three, years, and which occur in articles of furniture, the Messrs. Goddard Brothers, of Providence, R. I., have called our attention to the damage done to a case of cotton cloth at their Lonsdale Mills, and have kindly presented the three larvæ found, together with a damaged bale of cotton cloth, to the Museum of Brown University.

The box containing the goods was of pine, and perforated by at least three or four grubs, seventeen pieces being worm-eaten, one of which we have examined. The worms were thoughtful enough to gnaw through the folds, so as to thoroughly riddle almost every thickness of the cloth; the perforations in one case being about three inches long and half an inch wide on the outside, and contracting for two inches within to a size corresponding to that of the body of the grub. Not having seen the box, I quote from a letter to the Messrs. Goddard from Mr. J. Johnston, of Lonsdale, who took some pains to examine the box and to identify the worms as larvæ of a beetle. "The hole they make is in shape a very elongated oval, and is, I think, in every case about the size of the grub itself. It is unfortunate that we did not see the case as it was seen in Philadelphia. The bottom, where most havoc was wrought on the cloth, was mended with a strip of hard pine; possibly the original board was so badly damaged that it would not have been safe to return the goods in it as it was. On examining the shooks in the box-shop, I find a large proportion of them eaten by this embryo beetle. I ought to say that not a single grub can be found in the shooks; those I send were taken from live wood."

We are informed that this is the only case of the kind which has occurred out of about 250,000 boxes sent out from the mill. How long the larvæ may have lived in the lumber is, of course, difficult to say.

The larvæ, one of which was still alive, were about three-quarters of an inch in length, and on comparing them with the half-grown larvæ of *Monohammus confusor* of nearly the same size they were found to differ as follows: the clypeus and labrum are wider, the edge of the prothoracic segment is more hairy; the body is wider behind the thoracic segments, and more rounded and wider at the end. Without doubt these larvæ differ generically from Monohammus, but in the present state of our knowledge, it is impossible to refer them to their proper genus and species.

We may here remark that the larvæ of *Monohammus confusor* live two years before transforming into beetles, as we have been able to prove, having been fortunate enough to detect a female in the act of laying its eggs, and the year following to cut its half-grown grubs out of the same tree.

It is probable that the cases of extraordinary longevity on record are due to the fact that through some cause the insect as a beetle has been prevented from leaving the tunnel made while a grub. Its larval state may not be prolonged, but when insects are prevented from mating and laying their eggs, they live on in single blessedness through an unusual number of seasons. There is thus, apparently, a premium awarded by Nature upon celibacy, the reward being length of years. *A. S. Packard.*

New or Little Known Plants.

Camassia Cusickii.*

THE only American genus representative of the large liliaceous tribe which includes the Hyacinth, the Blue Bell or Grape Hyacinth, the Squill, and the Star of Bethlehem, is the genus *Camassia*. So near to *Scilla* is this genus that it is often included under it, and we so find it in Gray's Manual. The characters which separate the two are the leafy stem, the stouter habit, and larger flowers, and the nervation of the petals, which in *Scilla* have always a single midnerve, while in *Camassia* there are from three to nine nerves, showing most plainly after the flowers are dried.

The first known species was discovered by Captains Lewis and Clark in September, 1805, upon their expedition across the continent. After a difficult passage across the Bitter Root Mountains, by what is now known as the Lolo trail, during which they had found little grass for their animals or game for their own sustenance, they came out on the tenth day upon an open meadow and to an Indian village, where they were hospitably received. The Indians "set before them a small piece of buffalo-meat, some dried salmon, berries, and several kinds of roots. Among these last is one which is round and much like an onion in appearance and sweet to the taste. It is

* C. Cusickii, Watson, Proc. Am. Acad. xxii. 479. Bulbs clustered, large; leaves glaucous, subundulate, numerous, the larger two feet long by one and one-half inches wide; stem leafy, two or three feet high; pedicels and linear subscarious bracts about an inch long; flowers regular, pale blue, the narrow petals crisped near the base, 3-5 nerved, persistently spreading, an inch long; capsule oblong, transversely veined.

called quamash, and is eaten either in its natural state, or boiled into a kind of soup, or made into a cake which is then called pasheco. After our long abstinence this was a sumptuous treat." Seventy-five years afterward I crossed the same trail, still as wild, rugged and inhospitable as the earlier voyagers had found it, and came out into the same little prairie. The Indian village had vanished, but heaps of recently gathered Camass roots showed that the Indians still frequented the place, while marks of a mowing machine upon the grass were equally sure evidence of the near neighborhood of some white settler. Lewis and Clark in their narrative make frequent mention afterward of "quamash flats," and upon their return took back with them the specimens upon which Pursh founded the species *Phalangium Quamash*. This name Lindley subsequently changed to *Camassia esculenta*, the *Camassia* being a Latinized form of the Indian name *quamash* or *camass*.

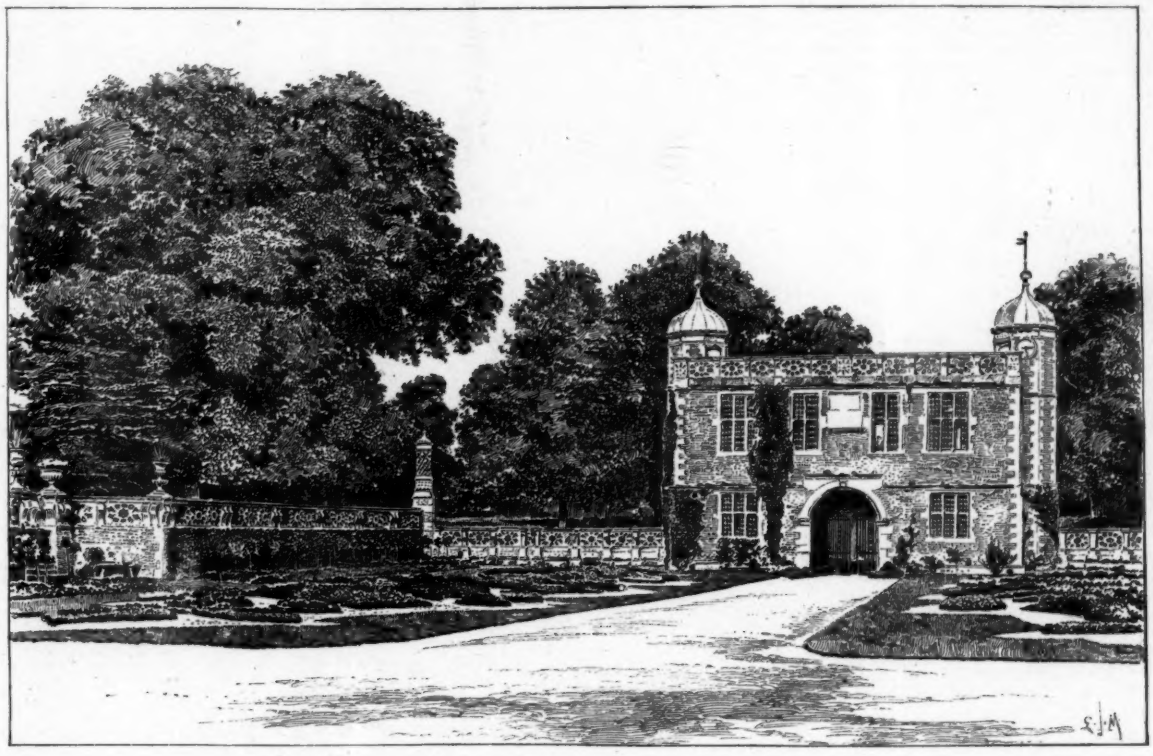
In 1810 Nuttall collected what he believed to be the same species "near the confluence of Huron River and Lake Erie," and afterward near St. Louis and on the banks of the Ohio. This eastern form, which ranges southward into Texas, was separated by Dr. Torrey and is known as *C. Fraseri*. The original Camass is abundant in many low meadows from Idaho to the Pacific, and has been an important article of food to the native inhabitants. On the lower Columbia a third species, *C. Leichtlinii*, is found, which has an equally nutritious root, and still a fourth species has been recently discovered in the Blue Mountains of Oregon, by Mr. W. C. Cusick, of which a figure is here given.

This is the stoutest and most vigorous grower of all the species, with a large bulb, numerous broad glaucous and somewhat undulate leaves, and a flowering stem two or three feet high. The flowers are of a delicate very pale blue, the petals spreading regularly, crinkled at the narrow base, and with three, or rarely five, faint nerves. It is described as growing on mountain slopes, instead of in meadows, and the bulb is nauseous, pungent and inedible. The figure on page 174 has been drawn by Mr. Faxon from a specimen that has recently flowered at Cambridge. *S. W.*

Plant Notes.

The Ginkgo Tree.

THE Ginkgo tree, as it is generally seen in this country, especially in the Northern States, where the climate is perhaps too severe for its full development, has rigid branches, and a stiff and not particularly attractive habit of growth, which make it difficult to use this tree satisfactorily in connection with other trees of less formal outline. As it approaches maturity, however, under favorable conditions, the Ginkgo, as our illustration on page 175,



The Court-yard of Charlecote Hall.—See page 171.

representing the noble specimen in the famous gardens of the Villa Carlotta, on the shores of the Lake of Como, shows, is a really beautiful and graceful tree, which will hardly be recognized by persons who have only seen it in a comparatively young state in parks and gardens in the Northern States. Most of the specimens in the United States still require time, probably, in which to develop their real beauty, but that they can in time attain the same graceful habit of growth, if not the same dimensions, as the tree we figure, the fine specimen planted in the first years of the century by Dr. Hosack, on the banks of the Hudson, at Hyde Park, amply testifies.

The Ginkgo, apart from its beauty, is a tree of very great interest, owing to the peculiarities of its botanical characters. It is one of the family of Conifers, but unlike the members of that family with which we are most familiar in this country, its leaves are deciduous, broad and fan-shaped, and instead of a cone, the fruit is a fleshy drupe, containing a large stone resembling that of an Apricot, and

with a delicate edible kernel, although the fleshy portion of the fruit has a most disagreeable rancid flavor. The male and female flowers are produced on separate trees, so that it is necessary to plant specimens of the two sexes in order to insure a crop of fruit, which is not produced until the trees have attained a considerable size. The Ginkgo is supposed to be a native of some part of northern China, where it is frequently cultivated in the neighborhood of temples and palaces, but it is nowhere known in a wild state. It has been cultivated in Japan, where it is believed to have been introduced, from time immemorial, and where it is valued for its beauty as well as for its nuts, which are highly esteemed by the Japanese.

This tree was introduced into Europe about 130 years ago, and it must be nearly a century since it was first sent to America. The peculiar shape of the leaves has gained for it the name of the Maidenhair tree, from their supposed resemblance to the fronds of the Maidenhair Fern. It is a large tree, producing valuable timber, sometimes attaining in Japan a height of nearly 100 feet, with a trunk three or four feet in diameter. The Ginkgo, to which the name *Salisburia* is sometimes improperly given, is very hardy as far north, at least, as New England, although a milder climate seems necessary to develop its greatest beauty. Considerable attention has lately been given to the Ginkgo in Europe, as a subject for street and road-side planting, and thousands of these trees have been planted during the last few years along the highways near some of the French and Italian towns of the Riviera. Its hardiness and its habit of growth seem to fit it admirably for this purpose.

Old Lombardy Poplar at the Trianon.—In the charming park of the Trianon where Louis XIV. was wont to retire for a time—when he was tired of the splendors of Versailles—stand the remains of a fine old Lombardy Poplar which was planted by Marie Antoinette. The top of the tree was blown off by a storm in 1880, but the trunk is yet full of life, and has a circumference of seventeen feet six inches, four feet from the ground.

Sugar Maple.—A diligent search through the park at the Trianon for trees, original specimens introduced into France by Michaux, was not successful. Since Michaux's time there have been revolutions and changes of Government, and the authorities do not seem able to point to many trees which can be said, with certainty, to date back to Michaux himself. One, however, a goodly sized Sugar Maple, is probably an original tree, and it was, by no means, in thoroughly good order, as the Mistletoe had taken complete possession of it. The branches were weighted down with this parasite, although the year before large quantities had been carefully cut out.

Ginkgo biloba.—A fine pair of these trees—perhaps better known under the name of *Salisburia adiantifolia*—stand in the State nurseries at Trianon. They are a male and female, and the latter was laden with fruits at the time of my visit last autumn. The larger of the two had a trunk which measured more than two and a half mètres in circumference. It seems strange that so handsome a tree has not been planted more generally along avenues in France. A gentleman now residing on the Riviera, familiar with the Salisburia as a street tree in Shanghai and other Chinese towns, has, at his own expense, planted avenues of it in some of the small Italian towns near the French frontier. If these succeed, and there seems no reason to doubt it, the Ginkgo will probably become popular throughout southern France.

Fig. 32.—Camassia Cusickii.—See page 172.

Actinidia volubilis.—Has any one grown this shrub in the United States for the sake of its fruits? A fine specimen, trained to a stake, at the Chateau de Segrez, was, last autumn, laden with round fruits, green in color and about the size of a large hazel nut. The taste was decidedly agreeable, the flavor not unlike that of some kinds of gooseberry. Probably the best and most complete collection of hardy ligneous plants,

not only in France, but on the Continent of Europe, exists at Segrez; it represents many years of care and study, and cannot fail to impress the visitor with the value of the labors of the late M. Alphonse Lavallée. It is earnestly to be hoped that the present representative of the family will follow up the work carried on with so much enthusiasm by his father.

George Nicholson.

In most green-houses such vines as Passion-Flowers, Stephanotis, Allamanda, Quisqualis, Lapageria and the like are trained to wires running along the rafters or lengthwise across the rafters. Unfasten these now and give them a thorough cleaning before tying them up again. To remove the coating of black dirt often found on the old leaves of vines, keep the leaves wet by sprinkling them with water for some hours

Fig. 33.—The Ginkgo Tree.—See page 173.

Cultural Department.

The Green-house.

GREEN-HOUSES have now been emptied of summer garden plants, and many winter-blooming plants have been turned out-of-doors for the summer to complete their growth and ripen their wood. This gives an opportunity to clean thoroughly green-houses and the plants remaining in them, and to rearrange and display them to the best advantage.

Wash the dark stains off the sash-bars and rafters and scrub the dirt and green confervæ off the plates, sills, stages and walls inside. Glass partitions and doors are apt to become dingy, and they should be well cleaned. If the houses are old, and there is any appearance of mealy bug about the plants, paint the wood-work inside with turpentine or kerosene, and stop all nail-holes and cracks with putty or rubber cement.

before washing. This softens the scurf, and it can be washed off with comparative ease.

The in-door decoration of the green-house in summer depends upon the kinds of plants grown, the purpose for which they are required, and the room and other conveniences at hand. Green-houses in summer are not in all cases genial homes for plants; they are apt to become too hot, hence gardeners provide out-door summer quarters for all the pot plants which are benefited by such treatment. But if the summer decoration of the green-house is desired there are among fine-leaved plants Palms, Anthuriums, Caladiums, Dracænas, Crotons, Marantas, Begonias, Ferns, Mosses and many others. See that all are perfectly clean and in good condition at the root; that they are neither over-potted nor under-potted; that the drainage is perfect, and that they are so arranged that each plant has abundance of room, and that all are arranged effectively and tastefully. Among flowering plants there are Gloxinias,

Achimenes, Gesneras, Begonias, Anthuriums, Clerodendrons, Dipladenias, Crinums and Crassulas. To these can be added a host of Orchids. If it really is desirable to maintain a gay conservatory all summer long, it will be necessary to keep up a supply and succession of flowering plants in summer as we do in winter. Hydrangeas, Plumbago, Cockscombs, Brugmansia, Clianthus, Justicias, Erythrina, Japan Lilies, Crape Myrtle and plants of their kind are used for this purpose, and they often are supplemented by the commoner annuals. But there is a peculiar cheapness about this sort of decoration. Plants that thrive better out-of-doors than in the green-house in summer assume a very unhappy aspect when in conservatory service during that period.

Hardiness of Perennials.

THE question:—What is the test of hardiness? recurs every spring. Too often we conclude that a plant is not hardy because it does not survive the winter, under certain conditions. But a wider experience proves that a plant's ability to endure winter cold depends as much upon summer heat as upon winter climate. The conditions of a plant under cultivation, differ widely from those of the same plant in its natural habitat. Observation seems to show that perennials are more common in woods, or shady places, and moist meadows; whereas annuals mostly grow in dry and exposed situations. May we not infer from this, that exhaustion during the hot season by excessive blooming and seed producing, as in the case of Aubrietias and Sweet Williams, tends to make annuals rather than perennials of them, and lessens their ability to endure winter cold? For this reason, we can never hope, perhaps, to practice spring bedding in this country with the success attained in England. Some of the most successful gardeners in America have pronounced it uncertain. I am referring more especially, though not exclusively, to plants suitable for the rock-garden. In forming a rock-garden an eastern or south-eastern slope is certainly preferable, but culture will, I think, be attended with greater success if some shade can be secured, such as is given by large trees at some distance away, so as not to have their roots penetrating the soil in which the plants are grown.

Apart from the question of reduced vitality, through excessive heat in exposed situations during summer, the ability to endure winter is not measured by counting the degrees on the thermometer. It depends upon other conditions than the mere amount of cold. Equable conditions are required. Any plan by which we can exclude sun-light and admit air, and so prevent alternate freezing and thawing, will help. I am surprised to find Narcissus hardy here when I had given them up further south. *Chionodoxa Lucilliæ* and *Scilla Siberica* grow and bloom beautifully when protected by a little litter. *Primula denticulata* and *Soldanella alpina*, both requiring protection in England, are strong and healthy after the winter. *Myosotis dissitiflora* and *Digitalis grandiflora*, as well as the common Foxglove, are a surprise to me this spring, knowing that they grow wild in the woods in England, and being biennials which retain their foliage naturally, I felt sure they could not survive.

Prevention of exhaustion by partial shade in summer, and a plan, such as a light covering of litter, in winter, to prevent alternate freezing and thawing, are among the most important considerations in the successful culture of hardy perennials.

Wellesley, Mass. *T. D. Hatfield.*

Forget-me-nots.—From March till June Forget-me-nots, grown in cold frames like Pansies and Polyanthuses, attain full perfection. If needed for cut flowers only they may remain to bloom in the frames, but if required for out-door garden decoration in spring, about the end of March or first of April we can lift them with good balls of earth and transplant in some warm, well-sheltered spot. The finer forms of Forget-me-nots have not proved hardy here. No doubt the common marsh Forget-me-not (*Myosotis palustris*) of Europe, also some of the stronger forms of *M. alpestris*, can be naturalized in moist, somewhat shady places in the Northern States, but I have never had any of the varieties of *M. dissitiflora* or *M. Azorica* live over winter as unprotected hardy plants.

Although the Forget-me-nots are all perennials, it is only as annuals that they can be treated successfully with us. True, we may raise a young stock from cuttings or division, but from seed is by far the easiest way. It is a mistake to sow the seeds in spring; spring-sown plants grow large and leafy during summer and many of them die off in fall. Better sow the seeds in July. This will give nice sized plants for wintering over in frames for next spring's blooming. Indeed, the self-sown seedlings that come up so numerously in the beds where the old plants have bloomed, make capital stock to winter over for spring work. Forget-me-nots like good soil and are impatient of drought at any time.

We have white as well as blue flowered varieties of all the common species, and rose-colored forms of some, but a blue Forget-me-not, like a Violet, is more desirable than one of any other color. For cut flowers *M. dissitiflora* is preferable, and both the blue and white varieties are good. Another one that gives great satisfaction is *M. alpestris robusta grandiflora*. It is a little later in coming into bloom than *M. dissitiflora*, but after it does come in it is cut in preference to any other. We have also the new *M. alpestris Victoria*, now in bloom and very beautiful. The plants are dwarf, very compact in habit, and copious in bloom, but while they make admirable specimens either in the frame or spring-garden, their flower branches are not long and ample enough for cut flowers. *W. F.*

Onosma stellulatum, var. Tauricium.—This is a neat alpine plant of the Borage family, happily named by Mr. Burbidge the "Golden Drop." It has a semi-shrubby, trailing habit, and hairy, gray-green, lanceolate, evergreen foliage. The flowers are arranged in graceful, arching cymes, 6–10 long, bearing graceful, lemon-colored, deliciously-scented flowers, in succession along more than half their length. It is perfectly hardy in the United States, having been thoroughly tested. It has never, to my knowledge, produced seed, but cuttings taken in spring from plants housed during winter, just after commencing new growth, and with a heel of old wood, which last is absolutely essential, strike easily in a temperature of 50°. The foliage must not be kept damp, so an ordinary glass cutting box will not do so well as the open bench. Young plants planted out in spring make handsome specimens by fall, and if taken up and potted in 6-inch pots will bloom beautifully during the late winter months—February and March. This Onosma is both rare and beautiful. It ought not to be rare in this country, for it is propagated far more easily here than in England, where it is much admired, and always sells at a comparatively high price, solely on account of the difficulty in its propagation. *T. D. H.*

Mackya bella.—Fine racemes of the handsome flowers of this plant, which botanists now consider a species of *Asystasia*, were shown at a recent exhibition of the Massachusetts Horticultural Society, from the gardens of Mrs. F. B. Hayes, at Lexington. It is a native of Natal, and has not been in cultivation very long, having been introduced into English gardens in 1869 by its discoverer, Mr. J. Sanderson. It is a tall, slender shrub, with virgate branches, producing terminal racemes of pale lilac, campanulate flowers, the throat of the corolla delicately penciled with purple veins. It is a member of the Acanthus family. *Mackya bella* is a free growing green-house plant, but it requires special treatment to induce it to flower freely. It should be encouraged to grow vigorously in summer, during which period it requires an abundance of water. During the winter months water should be withheld, and the plant, which loses its leaves, allowed a period of entire rest. Thus treated it will flower profusely along the ends of all thoroughly ripened shoots. Mackya is one of those plants which repays the care necessary to induce it to flower freely, and should be more generally grown than it is in this country at present. *S.*

Fragrant Herbs for Edging Plants.—Fragrant herbs, as Thyme, Marjorum and Savory, are the delight of many an old country garden, and as they grow so neatly and are so easily raised from seed, there is no reason why we cannot have them here, and in abundance. As edgings to little beds or borders of mixed plants they are neat and appropriate. Both the broad leaved and lemon Thyme are perfectly hardy; Savory and Marjorum seldom live over winter, but they quickly make good plants from seed sown in spring. All the variegated leaved varieties of Thyme are also hardy enough, but must be increased by division or cuttings, as they do not perpetuate their variegation from seed. To these add Lavender, and if desirable its flowers can be cut off. Two other fragrant plants of stocky habit, and well fitted for edgings, are *Calamintha alpina* and *Thymus patavinus;* both are easily obtained from seed.

Strawberries and Birds.—Cat-birds and robins are more destructive to the crop just as the berries are beginning to turn than later on when the full crop is ripe. The best way to circumvent the birds in a small home-garden is to erect a temporary frame around and over the bed, and spread over it a fine-meshed seine or fish net. Instead of a

seine, mosquito netting can be used, but the seine is very much better, as it is no impediment to wind or air, and with it there is no fear of the berries musting, by being kept too close, moist or warm. Get stakes about eight feet long, place them around and across the beds and about ten feet apart, and drive them about eighteen inches deep into the ground. Then take factory-cut bass-wood strips (each sixteen or more feet long and costing one to one and a half cents) and tack them against the posts on the border of the bed, and from post to post over the top. Then spread the netting over this frame. Sometimes, instead of the bass-wood strips, marlin can be used over the top. This gives a canopy six and a half feet high, leaving perfect freedom for picking the berries. The frame costs very little and the same stakes can be used for the same purpose for many years.

Cut-Worms.—From now till the end of June cut-worms are most destructive and they always are worse in sandy than in stiff clay land. They are especially fond of young beets, cucumbers and melons, but almost any tender young vegetable attracts them. No practicable means of poisoning, trapping or destroying them in any other way than by hand picking has, so far as I know, been discovered. Examine young crops in the morning, and whenever you observe that some of the plants have recently been cut, remove a little of the soil from about the plants and probably the depredator will be found.

The Rock-Garden in Spring.

ONE of the most interesting plants flowering in the rock-garden this week is a form of the Dogtooth Violet from the mountains of Oregon and Washington Territory (*Erythronium grandiflorum*, var. *albiflorum*). It sends up from long, narrow corms, broad leaves, conspicuously blotched with purple, and tall, slender racemes of two to six nodding, lily-like, long-pediceled flowers, which, when fully expanded, are nearly three inches across. The segments are pale yellow, dashed with orange towards the base, with darker orange spots on the interior face. The hardiness of this exceedingly beautiful plant has not been fully established here, but if it is planted in an open, well drained situation it will probably flourish.

Several handsome Tulips are now in flower. The most showy of these, perhaps, is *Tulipa elegans*, a form which is known in gardens only, and which Mr. Baker considers a hybrid between *T. acuminata* and *T. suaveolens*. It produces large and handsome bright red flowers, three to three and a half inches long. The base of the segments are beautifully marked on the interior with a yellow eye. They are nearly uniform in shape and are narrowed gradually to a very acute point. This is a very hardy plant which will flourish and increase in any good garden soil. Very satisfactory here, too, is *Tulipa sylvestris*, the European Wood Tulip, a common plant from Norway to the Caucasus. Its handsome, clear yellow, fragrant flowers, one to two inches long, somewhat nodding before they are fully expanded, are borne on tall flexuous scapes. The leaves, of which there are generally three below the middle of the flower stem, are glaucous, smooth and channeled, and often more than a foot long. Less showy than many of the higher colored Tulips, this is an exceedingly graceful and pretty plant. It is perfectly hardy, and blooms freely year after year, requiring no special care or cultivation. A much rarer plant, is the pretty little *Tulipa undulatifolia*, which Mr. Elwes discovered a few years ago on the Bozdagh range of mountains near Smyrna. It is a dwarf plant which is here not over three or four inches high. The leaves are glaucous, the lowest six inches long and one inch wide, the others much narrower, concave on the face with undulate margins. The handsome campanulate flower is bright crimson-red on the inside and dull greenish red without. The segments, which are handsomely marked on the inside, with a large black blotch, surrounded with a bright yellow border, are all gradually narrowed into a long acute point. This is a hardy species here, but it does not grow with any great vigor, and shows no inclination to increase. Another of the fine new central Asia Tulips (*T. Kalpakowskyana*) does admirably here. It is a native of Turkestan, where it was discovered by Dr. Albert Regel, who introduced it into the St. Petersburg Garden. Here the color of the flower is a bright cherry red, with a dull blackish eye, and black filaments and anthers, but it is described as a variable species, sometimes producing yellow flowers flamed with red on the exterior of the outer segments, and sometimes pure yellow flowers with a dark eye and yellow anthers and filaments. This species here attains the height of a foot, and produces flowers nearly two inches long. It is very hardy and is gradually increasing.

The Painted Trillium (*T. erythrocarpum*) is a far less showy plant than *T. grandiflorum*, but it is a pretty and attractive species well worth a place in the rock-garden, where it seems to flourish, although its home is in the cold, wet woods of northern New England and far northward. The flower is erect with oval-lanceolate, pointed, widely spreading petals, which are pure white, painted at the base with purple stripes. It flourishes in a partially shaded exposure, and requires the same soil and treatment necessary for the other species of the genus.

Persons who value only plants with showy flowers will hardly care to cultivate any of the species of *Asarum* or Wild Ginger—low herbs, with kidney-shaped or heart-shaped leaves, which completely hide the inconspicuous flowers, not unlike, in general structure, those of the well-known Pipe-Vine (*Aristolochia Sipho*). *Asarum Canadense*, a common plant in northern woods, is now in flower, and well fills a shaded pocket in the rockery with a mass of handsome membranaceous kidney-shaped and softly pubescent leaves, which look bright and fresh throughout the summer.

The Virginia Cowslip (*Mertensia Virginica*), an old and well known inhabitant of gardens, is handsome in the rockery or in the mixed border. It is a smooth, very pale, erect plant, one or two feet high, with obovate leaves, and rich, purple-blue, trumpet-shaped, nodding flowers in short raceme-like clusters. This Mertensia needs no special care or cultivation, and thrives in all exposures, and in any rich loam. It can be increased by division of the roots, or by seed, which should be sown as soon as ripe.

Dicentra eximia, one of the plants to which the name Dutchman's Breeches is commonly applied, is in flower several days later than the more delicate *D. Cucullaria*. It has bright green, three-lobed, deeply cut, handsome foliage and rather tall scapes, with compound clustered racemes of drooping red or flesh-colored flowers, nearly an inch long, with the crest of the two inner petals of the heart-shaped corolla projecting above the outer petals. This is a coarser leaved plant than the other American species of this genus, and is much more rare, being confined to a few localities in western New York and to the Alleghany Mountains of Virginia. It takes readily to cultivation, however, and has now covered a considerable piece of ground in a rather exposed part of the rockery. It can be easily increased by the division of the subterranean scaly shoots.

Few of our northern wild flowers possess a greater charm than the graceful and delicate little plants popularly known as Spring Beauty, two tuberous rooted species of the genus *Claytonia*. *C. Virginiana*, the more southern of the two species, and easily distinguished from *C. Caroliniana* by its long linear-lanceolate leaves (those of *C. Caroliniana* are spathulate-oblong, and only one to two inches long), is now thoroughly established here, and is blooming freely in one of the driest, and in summer most deeply shaded parts of the rockery. The pretty, rose-colored flowers in loose racemes close in the evening, but continue to open during several days.

Anemone ranunculoides is a tuberous rooted European species with deeply parted leaves and involucre, and with the general habit and stature of our common wild Wood Anemone, but with rather coarser foliage and clear bright yellow, instead of white or rose colored, flowers. It is an exceedingly pretty little plant, widely distributed, and not infrequently cultivated in Europe, but rarely seen in this country.

Among the few perennial plants of California which find themselves thoroughly at home in eastern gardens, the handsomest, perhaps, is the great peltate Saxifrage (*S. peltata*), which inhabits the beds of rapid mountain streams in the northern Sierra Nevada. This plant, which is one of the largest of the entire genus, sends up in early spring, before the appearance of the leaves, from thick, creeping root-stalks, tipped with broad green stipular leaf-sheaths with membranous pink margins, glandular scapes one or two feet high, bearing dense, branched cymes of handsome, large, pale pink flowers. The leaves which appear later are peltate, round, twelve to eighteen inches across, and are borne on stout, glandular petioles, sometimes two feet high. This fine plant requires, in order to develop all its beauty, a rather moist situation near a brook or along the borders of a pond. Here it will spread rapidly, and soon makes a great mass of foliage, which retains its beauty throughout the summer. It is now in full bloom.

The great interest which has been felt in England of late years in the cultivation of the Narcissus has given rise to several fine seedling forms of the Daffodil (*Narcissus Pseudo-Narcissus*) which command high prices as novelties.

None of these, however, equal the two old varieties, N. Emperor and N. Empress, raised many years ago by William Backhouse, of Walsingham, by crossing *N. Pseudo-Narcissus* with its variety with white perianth-segments, *N. bicolor*. Narcissus Emperor has immense, clear yellow flowers, while those of N. Empress resemble those of *N. bicolor*, although much larger and finer. They are stately and splendid plants, with immense deep-cupped flowers and broad, glaucous leaves, and it is not easy to imagine any product of the soil more beautiful than a great mass of these plants in flower. And yet how very seldom are the finest varieties of Narcissus seen in American gardens, and how few Americans know and appreciate their beauty!

Boston, May 20th. *C.*

Notes from the Arnold Arboretum.

THE beautiful Cherry Plum or Myrobalan is now blooming profusely. It is the *Cerisette* of the French and the *Kirschplaume* of Germany. It is a small tree here, hardly exceeding ten feet in height, with upright, unarmed, glabrous branches, the shoots of the previous year covered with chestnut or yellow-brown bark. The large white flowers appear simultaneously with, or just before, the unfolding of the leaves. They are one-half to three-quarters of an inch across, with lanceolate, glandular, reflexed calyx lobes and ovate-oblong, orbicular petals, and are borne on long, slender, glabrous peduncles. The leaves are ovate-acute, serrate, and sometimes slightly pubescent on the under side when young. The fruit is small, half an inch in diameter, depressed globular, scarlet, or on one tree in the collection bright, clear yellow, and of rather pleasant flavor. The Myrobalan Plum is an exceedingly hardy plant of no small ornamental value, which is very considerably heightened by the fact that, unlike most Plum trees, its flowers and leaves appear at the same time. This tree has long been known in cultivation. Its affinities and its native country even have never, however, been satisfactorily determined. The earlier European botanists, down to the time of Duhamel, supposed that it had been brought from America, but it has no connection with any American plant. Linnæus considered it a variety of the Common Plum (*P. domestica*), from which its glabrous peduncles, globose fruit and earlier flowers distinguish it. Loudon refers it also to *P. domestica*, which he considers to be a cultivated form of the Bullace Plum (*P. insititia*), from which he considered the Myrobalan to be "the first remove." Koch, an excellent authority in questions relating to the origin of cultivated fruit trees, considered it a form of *P. cerasifera*, to which he united the Caucasian *P. divaricata*—a view which finds some confirmation in the reflexed calyx lobes of our plant, and in the fact that its flowers are simultaneous with or precede the leaves by a day or two at most. And lastly, Sir Joseph Hooker, while he adopts Koch's name of *P. cerasifera*, considers "that both *P. cerasifera* and *P. domestica* are cultivated states of *P. insititia*," separating, apparently, the former from the Caucasian species. The flowering branch in his figure (*Botanical Magazine*, *t.* 5934), derived from the gardens of the Royal Horticultural Society, with precocious flowers, densely fascicled on short lateral branches, a character not given, as he himself points out, in any of the published descriptions of the Myrobalan Plum, can hardly belong to this plant. The Myrobalan Plum, unless Koch's views as to its Caucasian origin are adopted, although cultivated for centuries, is nowhere known in a wild state. A Plum, raised from seed brought from Turkestan and sent to the Arboretum by Max Leichtlin, is identical with the plants of European origin, but whether the Turkestan seed was derived from wild or from cultivated trees is not known.

Prunus Pissardi, a purple-leaved Plum, which of late years has become very common in gardens in this country, is now in bloom, and cannot be distinguished, except in the color of the foliage, calyx, peduncle and fruit, from the Myrobalan Plum. The habit, flowers, fruit and foliage here are otherwise identical in these two plants. *Prunus Pissardi* bears the name of the French gardener of the Shah of Persia, Pissard, who sent it to Europe about 1880. It is said to have originated in the City of Tauris, not far from Teheran, where it is valued for the color of its foliage and for its handsome, blood-red fruit.

The double-flowered form of *Prunus Pseudo-Cerasus* is in bloom. It is a very handsome and hardy Japanese Cherry, resembling some of the double-flowered varieties of the common Cherry, from which, however, it may be readily distinguished by the solitary forked peduncles conspicuously bracted at the base and below the forks, and by the emarginate petals. This double-flowered Cherry is one of the most common and most highly valued garden plants in Japan, where many varieties are known with flowers varying from nearly pure white to pale pink, and with a greater and a smaller number of petals. The single-flowered type of the species, which is pretty generally distributed throughout Japan, and is found also in Manchuria, has not flowered yet in the Arboretum. The double-flowered variety was introduced into Europe from Japan in 1864 by Robert Fortune, and has since been described and figured under various names, of which the oldest is *Cerasus Pseudo-Cerasus rosea-plena*. It is also known as *Cerasus Sieboldi* (*Revue Horticole*, 1866, p. 371), *Cerasus Capronia fl. roseo-pleno* (*Fl. des Serres* xxi., p. 141, t. 2238), and very commonly in nurseries as *Cerasus Watererii*. The best figure will be found in Lavallée's "*Icones*," *t.* xxxvi. In this country the Japanese Double Cherry is a small tree, rarely exceeding ten or twelve feet in height, with the general habit and appearance of a small Cherry tree. It is very hardy, but does not display much vigor of growth nor flower as freely as the common double Cherry. The deep pink flower-buds and the much paler pink flowers are, however, exceedingly attractive. The branching solitary peduncles sometimes appear clustered, owing to the closeness of the buds upon the ends of stout lateral spurs from the wood of the preceding year; and the effect of the flowers is heightened by their contrast with the handsome bronze-colored young leaves, which are ovate-lanceolate, abruptly acuminate, sharply serrate, six or eight inches long, pubescent when young, but later quite glabrous, the large, conspicuous, three-lobed, pinnatifid, glandular stipules nearly as long as the conspicuously biglandular petioles. The black fruit is described as being the size and shape of a pea.

Prunus Americana, the common wild yellow or red Plum of northern woods and an inhabitant of most gardens in northern New England and Canada, should be mentioned here as an early flowering ornamental plant of very considerable value. It is a small shrubby tree, rarely exceeding twenty-five or thirty feet in height, with thorny, rigid branches, which are now entirely covered with umbel-like clusters of small white flowers with conspicuous scarlet calyx-lobes. Of two forms in the Arboretum, one derived from northern Vermont flowers more than a week earlier than Western plants, upon which the leaves are nearly half grown when the flowers open. The fruit of this species is roundish-oval, yellow, orange or red, and has a pleasant flavor, although the skin is tough and sour. The wild Plum is exceedingly hardy; it grows rapidly and thrives in all soils and exposures; and when well grown makes, at this season of the year, an exceedingly attractive and beautiful appearance.

It is perhaps of interest to note that in the very large collection of Spiræas, *S. Thunbergii*, one of the most beautiful of the genus, is also the earliest in flower by several days. It is a native of Japan, where it is very common throughout the islands, in elevated valleys and on rocky hill-sides in the mountainous districts. This is one of the few plants which is attractive from early spring to very late in the autumn. No shrub produces a greater profusion of handsome flowers year after year; its habit is at once compact and graceful, and the delicate willow-like foliage of a peculiarly bright and cheerful color throughout the summer, in autumn, long after nearly every other deciduous shrub has lost its leaves, turns first to a deep bronze, and then to a brilliant orange and scarlet color. It is well worth planting for the beauty alone of its autumnal colors. And this is true as well of another Spiræa, which is also a favorite in Japanese gardens, although originally a native of northern China—the double-flowered form of *S. prunifolia*, which is more often seen perhaps in American gardens than any species of the genus. It is a very hardy plant, which spreads rapidly, soon making a large, dense clump of rigid, upright stems. It is one of the least beautiful of the Spiræas, however, in habit, and the small, very double white flowers are not handsome, but the colors which the foliage takes on in autumn are splendid in the depth and richness of their scarlet tints. The single-flowered type of this species is wanting in the Arboretum collection. The ends of the branches of both these Spiræas are sometimes killed back here a few inches in severe winters. Otherwise the plants are perfectly hardy, and never fail to flower profusely.

Ribes Gordonianum is in flower. It is a hybrid, raised many years ago in England, between *Ribes aureum* and *R. sanguineum*, and is a handsome and very hardy plant, with the habit and showy racemes of *R. sanguineum*, but the flowers are lighter colored. It is by far the handsomest of the Currants which are perfectly hardy here. Among many American species of this genus now in flower, *R. Cynosbati*, the wild Gooseberry of our northern woods, may be mentioned as a plant worth introduction into ornamental shrubberies. It is a compact shrub, which attains, under favorable conditions, a height

of three or four feet, with dark green, round, heart-shaped, three to five lobed leaves, and slender two to three flowered peduncles. The berry is large, armed, like a burr, with long prickles or rarely nearly smooth. The wild Gooseberry thrives in all soils and exposures.

Botanists are familiar with *Andromeda polifolia*, but it is too rarely seen in gardens, although, like many other plants which are only found growing in their natural state in cold, deep peat bogs, where they are often almost entirely submerged in water, this beautiful evergreen takes kindly to cultivation and flourishes and flowers in a garden border as freely as in its native swamps. In cultivation *Andromeda polifolia* makes a handsome, compact mass of foliage two or three feet across, and ten or twelve inches high. The leaves are about an inch long, oblong-lanceolate, dark green above, white on the under side, with the edges conspicuously rolled back. The pale pink or flesh-colored, bell-shaped flowers are produced on long pedicles in short terminal racemes or clusters, and continue to appear during several weeks. *Andromeda polifolia* is widely distributed in North America from Pennsylvania far northward; it is found on the North-west Coast, in northern Asia, in northern and on the high mountain ranges of central Europe. *J.*

The Forest.

Tree Notes.

AFTER passing through the intense heat and continuous drought of last summer and the extreme cold of the past winter, many important observations can be made as to its effect on trees in different localities, and as is usual after such severe seasons, the statements will be conflicting, and many cases reported that neither science nor practical experience can account for. In localities where there were seasonable fall rains, trees will be found to have suffered less than where they went into the winter without sufficient moisture at the roots; further than this I have no opinion to offer, for in my experience, each severe winter has had a different effect from the previous ones.

As I spent the past summer and winter on the Pacific Slope I have not had an opportunity to examine the damage done here, but I took a deep interest in the effects produced there, where it was unusually cold for a few days, even to forming ice in some spots in the San Gabriel valley.

Tender herbaceous plants and Palms were injured in some places—the latter very slightly—while they escaped unhurt in others. The varying effect upon exotic trees was noticeable. In one part of the valley I saw the Rubber tree four or five years transplanted and having made a 2½ to 3 feet annual growth, cut back or injured for nearly 3 feet, while in other places a mile or two distant I saw the same tree over 30 feet high, not even injured in the terminal bud.

Two reasons might be given, either of which would account for this difference. The younger tree, irrigated and growing very rapidly, would not be in as good condition to withstand a slight freeze as the more mature tree with a more gradual and better ripened growth. The older tree stood nearer the mountain, consequently the cold north wind could not reach it as it did the tree further off in the valley.

The people in California said they had not experienced such a cold wave for fifteen years; this I could believe, as they had nature for an endorser. Trees always tell the truth and they told it very plainly.

The effect of a hard winter in the desert and on the mountains where nature had full sway was still more interesting. Even among the Sages, Greasewoods, and the numerous shrubs and plants on the desert I could see many that showed the effects of an unusually hard winter for that climate, but as we climbed the mountains the effects were most plainly visible.

The shrubs and plants which had crept up the side of the mountain from the edge of the Desert grew smaller and more shrubby at every step. The western Juniper and one of the evergreen Oaks, particularly arrested my attention. They had grown on year after year, making a very short growth each year, and holding their leaves, but last winter cut off many years' growth, the foliage still hanging on red and lifeless.

As we ascend the mountain higher and higher one plant after another drops out, until at last we find only the irrepressible Yellow Pine, *Pinus ponderosa*, standing majestically alone, tall, noble shafts, now in masses, again in groups, and then a single tree, with short grass nearly covering the ground in the open spaces. For many miles east and west of Flagstaff, Arizona, these trees form an immense park, and although one species, present so many forms on hill, crag, plain and valley, that the forest does not strike one as being monotonous.

As we gradually descend we find now and then a few diminutive deciduous Oaks, Poplars and wild Roses. The valleys, plains and open spaces intersecting this immense forest are covered with a short species of bunch grass nearly covering the ground, giving them somewhat the appearance of a well kept lawn, as there are no shrubs and few young trees intermixed. The trees stand much further apart than in eastern forests, and as they are entirely free from branches for nearly two-thirds of their whole height, the view extends far in among the tall straight trunks, and is much to be admired, the light cinnamon colored bark having a pleasing effect.

Sheep, cattle and horses are feeding on the grass, and the saw mills are devouring the timber. These forests are already doomed. Few seedlings are springing up to take the place of the older trees, and these will not be able to stand alone and bear the severity of the hot sun and parching desert winds. These forests have stood till now in spite of all the hardships they have had to encounter, but dollars and cents are too much for them! there is money in them, so they must go!

We call the Indians savages! Yet they have more forethought in this case than the white men. They have roamed among these forests from time immemorial, and they have made their mark on the Yellow Pine, for we see that when food is scarce in the early summer, they take strips of bark from the large trees, and eat the mucilaginous part of the immature sap wood, but they never take the strip wide enough to kill the tree, going from one tree to another and not peeling over one-quarter of the circumference of the trunk, so that the tree receives little or no damage.

Robert Douglas.

Correspondence.

To the Editor of GARDEN AND FOREST:

Sir.—As the season approaches in which the bloom of the Ailanthus distresses persons in its vicinity, I am impelled to offer some information with regard to this tree.

It is usually spoken of as a valuable tree for planting, despite the disagreeable odor of its blossoms. Its rapid growth and beautiful foliage make it a favorite with many, and comparatively few are acquainted with its deleterious influence. I am told by a citizen of Boonsboro, Md., that at one time there were many victims to consumption in that place. Physicians were puzzled to account for its prevalence in what was formerly a healthy mountain town. One doctor called the attention of the fraternity to the fact that the cases were in one particular section of the town, and it was discovered that the trees in that end were principally Ailanthus. The fact came out by inquiry that in each case, where there was not hereditary tendency, the patient had first an annual attack of a strange sickness in June, which lasted but a few weeks. The stomach would be disturbed and a peculiar sore throat was one of the symptoms of the temporary sickness. After a few years the throat became chronically sensitive, but was always worse in June, and, eventually, consumption set in.

The particular time in June when this disease prevailed was during the blooming of the Ailanthus. I have been told that legislation was secured in Ohio to prevent the planting of this noxious tree. In my own town there have been marked cases of sickness resulting from propinquity of this tree.

Last summer several families in different parts of town were obliged to call in a physician to treat a sore throat that "went through the family." Several were in bed for more than a week, suffering with nausea, extremely sensitive throat, inability to take any food, inability to sleep at night, a desire to have the air filtered to prevent inhalation of poisonous particles. In each case an Ailanthus was in blossom in the neighborhood.

The Hay-Fever Association might obtain interesting statistics if a thorough investigation would be made. Several persons visiting in town were attacked with acute hay fever symptoms, lasting three weeks; but after the bloom was over these symptoms gradually disappeared. These persons had never before been troubled with such affections, nor had they ever before been in the vicinity of an Ailanthus in full bloom. A remarkably healthy child was one of the victims, and she did not regain her usual health until the following October.

A hay fever patient for many years had a three weeks' sickness in June, and could not account for the distressing sore throat, influenza and constant nausea. Finally it was observed by friends that this came on during the blooming of the Ailanthus. At length hay fever set in, and it was found the latter disease was but an aggravated form of the June attack.

Is it not time that such facts should be published and communities be protected from health-destroying influences?

Hagerstown, Md. *C. V. Tice.*

[What we believe to be an entirely unfounded belief in the injurious properties of the Ailanthus tree has taken possession of communities in this country at different times and in different places. The flowers of the male tree have an exceedingly disagreeable odor to many persons, and as they produce large quantities of pollen, people liable to attacks of hay-fever would be affected by it, in the same way that the pollen produced by any other plant in equal quantities or by dust would affect them. We have never seen any well substantiated statement of persons supposed to be affected by the Ailanthus obtaining relief by the destruction of the trees; and it seems not improbable that the particular cases to which our correspondent calls attention have been the result of malaria or improper drainage or impure drinking water—a belief sustained, in part at least, by the fact that the Ailanthus is one of the most commonly planted, and most highly esteemed trees in Paris and other European cities, while its bad reputation, so far as we can learn, is confined to this country. As it is only the flowers of the male plant which are disagreeable, all risk, real or fancied, in planting this tree can be obviated by selecting the female plants only. The influence of the Ailanthus upon persons with catarrhal tendencies is a matter of much general interest, and we shall be glad to find room for a statement of well authenticated cases where this tree has been the cause of sickness.—Ed.]

Notes.

Mr. T. S. Brandegee has lately explored Santa Crux, a small island off the California coast possessing an interesting vegetation which differs in some of its features in a remarkable manner from that of the adjacent coast, and which was first made known a year or two ago by a paper published in the Proceedings of the San Francisco Academy of Sciences, by Mr. Edward L. Greene. The object of Mr. Brandegee's visit to the island was to procure wood specimens of its peculiar trees for the Jesup collection of North American woods in the American Museum of Natural History in this city. This Mr. Brandegee has accomplished, having secured fine specimens of an oak, *Quercus tomentella*, not known within the limits of the United States, except on this Island; of *Lyonothamnus asplenifolius*, a very beautiful small tree attaining a height of forty feet, a representative of a small genus of the Saxifrage family peculiar to this little group of islands, of which a second species, a tall shrub, is known. This plant is interesting as the only arborescent member in North America of a family, which is very widely and generally represented in our flora by humbler plants. The silva of Santa Cruz Island contains also a very handsome arborescent *Ceanothus* (*C. arborescens*), which has not been found elsewhere. *Rhamnus insularis*, and a peculiar form of the mainland *Prunus ilicifolia*, are also interesting trees peculiar to this island. Mr. Brandegee's visit has, he believes, added nearly two hundred species to its flora.

Mr. C. G. Pringle, some of whose interesting sketches of Mexican vegetation have already appeared in this journal, has now started for another long botanical journey in northern Mexico. He will proceed by rail to Lerdo, a town on the Mexican Central Railroad, about three hundred miles from the city of Chihuahua, and then travel by wagon through the Lagoona country practically over the route followed by Wislizinus half a century ago, to Saltillo, Monterey and Matamoras, where he will collect wood specimens of some of the trees peculiar to the valley of the lower Rio Grande, for the Jesup collection. Mr. Pringle then hopes to explore some parts of the Sierra Madre of Nuevo Leon, a region still very slightly known botanically, and then later return to Chihuahua and the region which he visited last year in time to collect the flowers which only appear after the rains of midsummer.

Retail Flower Markets.

New York, *June 1st.*

The large sales of small plants for Decoration Day were made at wholesale rates. The supply of flowers continues abundant and prices are low. Baroness Rothschild and Anna de Diesbach Roses are the finest of the hybrids. Selected ones cost 40 and 50 cts. The average run cost 25 cts. American Beauties cost the same. Gen. Jacqueminots are large and have improved during the week in length of stems. They are $2 a dozen. Bennetts and Madame Cuisins are $1.50 a dozen. Brides and Catherine Mermets are unsatisfactory in quality. They are 15 cts. each. Perles, Niphetos and Souvenir d'un Ami cost $1 a dozen. Papa Gontiers are of good size and color and they sell for 75 cts. a dozen. Bon Silenes are 50 cts. a dozen. The demand for specimen Hydrangeas has been fair throughout the week. Plants have sold from $1.50 to $5. Pink Peonies are plentiful. They bring from 15 to 25 cts. each. Lilac costs 50 cts. a bunch. Mignonette is from 40 to 60 cts. a dozen. Carnation costs 35 cts. a dozen and Pansies 25 cts. The yellow Paris Daisies bring 50 cts. a dozen. They are plentiful and popular. Daisies are 25 cts. a dozen. Violets are small and bring 75 cts. a dozen. Lily-of-the-Valley is out-of-door grown, but large and handsome. It is 50 cts. a dozen. Smilax is 30 cts. a yard. Asparagus costs from 75 cts. to $1. In most of the baskets made up for souvenirs, shrub blossoms are clustered in one side, while Roses fill the other. Sweet Pea blossoms arrive in small quantities and bring fancy prices.

Philadelphia, *June 1st.*

The demand for all choice flowers was very heavy until the middle of this week, owing, in a great measure, to the festivities connected with the visit of Mrs. Cleveland. Pansies, the favorite flower of the President's wife, were in especial demand. As a matter of course all varieties of flowers were in request on Decoration Day. Flowers are generally very plentiful now, excepting White Carnations, which still remain quite scarce. Thousands of the wild Daisy are brought into town, and florists report large sales every day. Roses are falling off in color and size, American Beauty being the best now on sale, and fine ones sell for $5 per dozen. Meteor is the best crimson Rose now; it is brighter in color than Jacqueminot, as seen at this season of the year, and it retains its bright color longer than any other in the same class; as a Rose for summer blooming under glass it is destined to rank very high. Gardenias are becoming more popular as a flower for evening wear. A very few Sweet Peas are offered at $1.50 per dozen. These dainty flowers are deservedly increasing in favor each year. Corn-flowers are also offered at 50 cts. per dozen; these vary in color from pure white to purple, pink, blue and yellow. Some Forget-me-nots may yet be had, but it is only by careful growing that it is presentable at this late season. General prices remain about as they were a week ago, with a fair demand and plenty of flowers.

Boston, *June 1st.*

As predicted last week, the stock of cut flowers in this market for Decoration Day ran short, and prices were correspondingly high. Roses of the commoner kinds and Carnations were more than double the usual prices. Fancy Roses did not feel the pressure so much. There is no Lily-of-the-Valley in the market excepting the small out-door variety. Red and bright colored flowers in general are scarce, and bring high prices in the wholesale markets. There has been an abundance of double white Stocks and Spiræa; also a fair supply of white Lilies, all of which were very useful for Decoration Day purposes. One grower here forced a lot of Canterbury Bells, which met with a ready sale, there being no other blue flower obtainable. Its beautiful color and graceful form make it a welcome addition to the small list of really effective flowers available for basket work at this season of the year. Prices of staple varieties by the dozen are as follows: Hybrids, $6; Jacqueminots, $3; Mermets, Perles and Sunsets, $2; Niphetos and Bon Silenes, $1; Carnations, 50 cts.; Lilies, $2; Lily-of-the-Valley, 50 cts.; Stocks and Spiræa, $1; Pansies, 25 cts.; Mignonette and Heliotrope, 35 cts. Smilax is of better quality, and worth 50 cts. a string of four to five feet in length. But few corsage bouquets of florists' flowers are worn on the street at present, Apple Blossoms, Wild Violets, Anemones and the like having the preference while they last.